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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,378	11/25/2003	Nobuyuki Sekikawa	492322001810	4282

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EXAMINER

RAO, SHRINIVAS H

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,378

Applicant(s)

SEKIKAWA ET AL.

Examiner

Steven H. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06/01/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 6-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

Applicants' amendment filed on May 24, 2005 has been entered and forwarded to the Examiner on June 01, 2005 .

Therefore claims 6-11 as recited in the amendment are currently pending in the Application.

Information Disclosure Statement

No further IDS after the one filed on July 13, 2004 have been filed in the case to date.

Claim Rejections - 35 USC Section 103

.The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action .

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 to 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moslehi (U.S. Patent No. 5,937,909, herein after Moslehi) in view of Araki (U.S. Patent No. 5,882,994, herein after Araki).(both cited in the parent case and included by the Applicants in their P10-1449 of the present case).

With respect to claim 6 Moslehi describes a method of manufacturing an insulated gate semiconductor device comprising : forming a first gate oxide on a semiconductor substrate of a first conductivity type; (Moslehi figure 2 # 48 over 38, col. 1 1 lines 23-25) forming a first silicon layer on the first gate oxide film ; (Moslehi fig. 3 # 50 over 48, col. 1 1 line 35) forming an oxidation protection film having a predetermined pattern on the first silicon layer ; (Moslehi figure 3 # 52 over 50 , col. 11 line 20) forming a field oxidation film (Moslehi figure 3 # 42) and a second gate oxide film through selective oxidation by using the oxidation protection film as a mask.

Moslehi does not specifically describe a second gate oxide film through selective oxidation by using the oxidation protection film as a mask.

However, Araki, a patent from the same filed of endeavor, describes in figures 6-7 and col. 4 lines 51-65, etc. describes a second ONO insulation film to form insulators with enhanced insulation characteristics and charge storage characteristics.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Araki's second insulating ONO layer in Moslehi's device to form insulators with enhanced insulation characteristics and charge storage characteristics (Arkai col. 1 lines 53-56) the second gate oxide film being in contact with the first gate oxide film; (Araki figure 7 106 in contact with 105).

The remaining limitations of claim 1 are :

forming a second silicon layer covering the first silicon laver remaining after the selective oxidation the second gate oxide film and the field oxidation film after removing the oxidation protection film, (Araki fig. 8 # 107, col. 4 line 56-58 col. 14 line 16)

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isolating a portion of the second silicon layer by etching so that the isolated portion of the second silicon layer covers at least part of the second gate oxide film and a portion of the remaining first silicon layer', (Araki col. 4 lines 56-65) forming a source layer or a drain layer which is of a second conductivity type. (Moslehi figure 3 col. 10 lines 50-55).

With respect to claim 7 Moslehi describes a method of manufacturing an insulated gate semiconductor device comprising'. forming a low impurity concentration source layer and a low impurity concentration drain layer which are of a second conductivity type Moslehi figure 4 # 58, col.12 lines 25-30) in a semiconductor substrate of a first conductivity type; (Moslehi figure 4 # 38, col. 10 lines 50-55) forming a first gate oxide film on the semiconductor substrate', (Moslehi figure 2 # 48, col. 1 1 lines 23-25) forming a first silicon layer on the first gate oxide film (Moslehi fig. 3 #50 over 48, col.1 1 line 35) forming an oxidation protection film having a predetermined pattern on the first Silicon layer (Moslehi fig. 3 #52, col. 1 1 line 20) forming a field oxidation film (Moslehi fig. 4 #42, col. 10 line 59)

Moslehi does not specifically describe second gate oxide through selective oxidation by using the oxidation protection film as a mask the second gate oxide being in contact with the first gate oxide film.

However, Araki, a patent from the same filed of endeavor, describes in figures 6- 7 and col. 4 lines 51-65, etc. describes a second ONO insulation film to form insulators with enhanced insulation characteristics and charge storage characteristics. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Araki's second insulating ONO layer in Moslehi's device to

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form insulators with enhanced insulation characteristics and charge storage characteristics (Arkai col. 1 lines 53-56) the second gate oxide film being in contact with the first gate oxide film; (Araki figure 7 106 in contact with 105).

The remaining limitations of claim 7 are :

isolating a portion of the second silicon layer by etching so that the isolated portion of the second silicon layer is positioned between the low impurity concentration source and drain layers and covers the remaining first silicon layer and at least part of the second gate oxide; and forming ; (Araki col. 4 lines 56-65) light impurity concentration source layer of the second conductivity type in the low impurity concentration source layer and forming a high impurity concentration drain layer of the second conductivity type in the low concentration drain layer. (Moslehi figure 7, col. 13 lines 49 to 55).

With respect to claims 8 and 10 Moslehi describes the method of manufacturing an insulated gate semiconductor device of claim 7, wherein the first and second silicon layers comprise polysilicon or amorphous silicon. (Moslehi col.II lines 37-40).

With respect to claims 9 and 11 Moslehi describes the method of manufacturing an insulated gate semiconductor device of claim 7, wherein the oxidation protection layer comprises silicon nitride. (col. 12 lines 20-25- layer 52 other than oxide col.I 1 lines 29-31- nitrided oxides, etc.,)

Response to Arguments

Applicant's arguments filed May / 24/ 2005 have been fully considered but they are not persuasive for the following reasons :

Applicants' arguments are based on piece meal analysis of what the individual references Moslehi and Araki allegedly do not teach .

Applicants' arguments that Moslehi does not teach or suggest the claimed "forming of a field oxidation film and a second gate oxide film through selective oxidation by using the oxidation protection film as a mask" is not persuasive because the Office Action states "Moslehi does not specifically describe a second gate oxide film through selective oxidation by using the oxidation protection film as a mask."

It is noted for the record that if as Applicants' desire were Moslehi to specifically describe/teach the step of forming a second gate oxide film through selective oxidation by using the oxidation protection film as a mask, the outstanding rejection would have been a 102 rejection anticipation rejection and not a 103 obviousness rejection.

It is not for the record that the applied secondary reference teaches , " Araki, a patent from the same filed of endeavor, describes in figures 6- 7 and col. 4 lines 51-65, etc. describes a second ONO insulation film to form insulators with enhanced insulation characteristics and charge storage characteristics."

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Araki's second insulating ONO layer in Moslehi's device to form insulators with enhanced insulation characteristics and charge storage characteristics (Arkai col. 1 lines 53-56) the second gate oxide film being in contact with the first gate oxide film; (Araki figure 7 106 in contact with 105). ".

Assuming Applicants' some how overcome the procedural problems set out above, it is further noted that Applicants' contention Moslehi does not teach a second

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gate oxide film through selective oxidation by using the oxidation protection film as a mask is not persuasive because Applicants are engaging in impermissible piecemeal analysis by restating what was stated in the rejection, namely , “ Moslehi does not specifically describe a second gate oxide film through selective oxidation by using the oxidation protection film as a mask ”.

One of the reasons the secondary Araki reference is applied to is show, “a second gate oxide film through selective oxidation by using the oxidation protection film as a mask” and therefore it is not necessary for the primary reference (Moslehi) to repeat the teachings already taught by the secondary reference (Araki) .

It is noted that current case is “ one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. (In re Keller , 208 USPQ 871, CCPA 1981).

Applicants' next contention that Moslehi and Araki to gather do not teach or suggest the claimed order of forming the first silicon layer, the filed oxidation and second gate oxide films and the second silicon layer is not persuasive because the claims as presently recited are not commensurate in scope with Applicants' contention . Applicants' claims presently use the open ended language comprising which does not exclude any order of performing the steps.

If Applicants' want their specific order of performing steps to be given patentable weight then the claims must recite that the steps are only performed in the order recited or similar to language to exclude other sequences.

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Assuming Applicants recite a particular sequence of performing steps this by itself is not sufficient to overcome an obviousness rejection because current case law holds :

“ As a matter of fact selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results. “ In re Burhaus , 154 F. 2d. 690, 69 USPQ 330 (CCPA 1946) See also Ex parte Rubin 126 USPQ 440 (BAPI 1959) and In re Gibson, 39 F.2d. 975, 5 USPQ 230 (CCPA 1930).

Applicants' state the allegedly claimed order improves flatness of an inter oxide film on which wiring is formed . However Applicants' have neither shown this alleged improved flatness is either new or unexpected and further why it is the particular sequence of process steps that lead to this alleged result.

Claim 7 was alleged to be distinguishable for same reasons as claim 6, however as shown above the same arguments with respect to claim 6 were not persuasive , therefore they are not persuasive here.

Applicants' allege that claims 6-11 were allowable because allegedly claims 6 and 7 are allowable.

However as seen above claims 6 and 7 are not allowable.

Therefore claims 6 –11 are also not allowable.

Therefore all pending claims are finally rejected.

THIS ACTION IS MADE FINAL. As the same references as previously applied are the only ones used herein .

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Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (571) 272 -1718. The examiner can normally be reached on 8.00 to 5.00.

The fax phone number for the organization where this application or proceeding is assigned is 571-272- 8300 (after 07/15/2005) or 703-872-9306 (up to 09/15/2005).



Steven H. Rao
Patent Examiner

August 04, 2005.



LONG PHAM
PRIMARY EXAMINER